





**In the  
Supreme Court of the United States**

**OCTOBER TERM, 1976**

**NO. 76-1725**

**MRS. WANDA MOORE LONG, ET ALS.,  
Petitioner**

**versus**

**BELL HELICOPTER COMPANY, A DIVISION  
OF BELL AEROSPACE CORPORATION,  
Respondent**

**Petition for Writ of Certiorari to the United  
States Court of Appeal, Fifth Circuit**

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Mrs. Wanda Moore Long**



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PETITION FOR WRIT OF CERTIORARI TO THE  
UNITED STATES COURT OF APPEAL,  
FIFTH CIRCUIT

Mrs. Wanda Moore Long, Administratrix of the estate of deceased, Joseph C. Long, Jr., prays that a writ of certiorari issue to review the judgment of the United States Court of Appeal, Fifth Circuit, entered in the above case January 13, 1977, rehearing denied March 7, 1977.

OPINION BELOW

The opinion of the Court of Appeal, Fifth Circuit is reported 545 F.2d 744. The opinion of the District Court, Western District of Louisiana, is reported in 357 F. Supp. 1164.

JURISDICTION

The Jurisdiction of this Court is invoked under 28 U.S.C. 1254.

This is one of the cases consolidated under the title "Higginbotham vs. Mobil Oil Corporation" (545 F.2d 744) and Mobil Oil Corporation has or will file a petition for certiorari also. The record in these consolidated cases (or pertinent portions thereof) will be filed in this Court at the instance of Mobil Oil Corporation, in connection with its petition for certiorari, and petitioner here adopts the record as so filed in its entirety.

### QUESTIONS PRESENTED

1. Under 46 U.S.C. § 761, et seq. (Death on the High Seas Act) is a manufacturer responsible for damages caused by a defective product according to principles of breach of implied warranty or strict liability? The court of appeal reserved the question in the Fifth Circuit for the second time, preferring to find insufficient facts here. We submit that this hesitancy as to applicable law carried over to the court's appreciation of the remaining issues and its evaluation of the evidence.

2. Under the law of implied warranty or strict liability of manufacturers, may the plaintiff recover on proof that a factory-fresh product failed under ordinary operating conditions, or is the plaintiff required to prove a specific defect? Here, the court of appeal misinterpreted the opinion of the district court, leaving the issue never squarely met in either court.

3. In evaluating testimony under the "clearly erroneous" rule [F.R.C.P. 52 (a)] can unsupported declarations of disagreement be elevated to the status of "contradictory" evidence? The Court below, upon analysis, manifestly did so.

## STATUTORY PROVISIONS

### 46 United States Code § 761:

"Whenever the death of a person shall be caused by wrongful act, neglect, or default occurring on the high seas beyond a marine league from the shore of any State, or the District of Columbia, or the Territories or dependencies of the United States, the personal representative of the decedent may maintain a suit for damages in the district courts of the United States, in admiralty, for the exclusive benefit of the decedent's wife, husband, parent, child, or dependent relative against the vessel, person, or corporation which would have been liable if death had not ensued."

## STATEMENT OF THE CASE

### 1. The Court of Proceedings

This is one of four consolidated cases arising from the crash of a newly-designed and newly-built helicopter on August 15, 1967, in the Gulf of Mexico, more than a marine league from the shore of Louisiana.

In this case (Civil Action No. 13958) Mrs. Wanda Moore Long, on behalf of herself as widow and the minor children of the deceased pilot, Joseph Clyde Long, Jr. seeks damages for his death from Bell Helicopter Company ("Bell") the designer and manufacturer of the craft, under 40 U.S.C.A. 761 et seq. (Death on the High Seas Act).

In the other three cases, survivors of the three deceased passengers join as defendants both Bell and Mobil Oil Corp-



poration ("Mobil"), the owner and operator of the helicopter at the time of the crash.

The district court exonerated Bell, and held Mobil liable to two of the passengers. The Court of Appeal, Fifth Circuit, sustained the findings as to liability, but modified the judgment in other respects.

We understand that Mobil and the representatives of James Nation, a passenger, will also apply to this Honorable Court for a writ of certiorari.

## 2. Statement of Facts

The fatal helicopter departed an oil drilling rig in the Gulf of Mexico in good flying weather at 4:00 p.m. Attempted radio contact with the ship shortly after taking off was unsuccessful, and at 5:45 p.m. a search helicopter found parts of the helicopter floating in the water about two and one-half to four miles northeast of the rig. The tailboom was found floating approximately one thousand yards west of the main wreckage. The new helicopter had only 165.45 flying hours.

The Bell Jet Ranger was a unique and short-lived design. Only 153 craft incorporated the innovative magnesium monocoque tailboom. "Monocoque" means single-shell, without internal supports, and magnesium is notable for its corrosibility and susceptibility to fatigue, as well as its advantageous strength-to-weight ratio.

Shortly after first sales in January, 1967, fatigue cracks in the tailboom were reported by customers throughout the country. There were nine reports prior to this accident on

August 15, and four more thereafter. Production of magnesium tailbooms was halted in October, and in the following year all outstanding magnesium tailbooms were exchanged for aluminum.

At trial, plaintiff relied primarily on the testimony of crash reconstruction experts, who concluded from the physical evidence available that the tailboom of the helicopter broke off in mid-flight. In support of this conclusion, plaintiff also offered the testimony of metallurgical experts who found that a fatigue crack had originated the tailboom separation.

## REASONS FOR GRANTING THE WRIT

### I.

Plaintiff pitched her case on the principle, considered to be well settled, that jurisprudence under the Death on the High Seas Act incorporated the prevailing on-shore standard for tort liability for manufacturers, i.e., regardless of fault or negligence, a manufacturer is liable for damages resulting from a defective product. *Noel v. United Aircraft Corp.*, 204 F. Supp. 929, (D.C. Del. 1962), *Middleton v. United Aircraft Corp.*, 204 F.Supp 856 (D.C. N. Y. 1960), *Lindsey v. McDonnell Douglas Aircraft Corp.*, 460 F.2d 631, 635 (8th Cir., 1972), *Montgomery v. Goodyear Tire and Rubber Co.*, 231 F.Supp. 447 (S.D. N.Y. 1964), *Sevits v. McKiernan-Terry Corp.*, 264 F. Supp. 246 (S.D. N.Y. 1966), *Pardonnet v. Flying Tiger Lines, Inc.*, 233 F. Supp. 682 (N.D. Ill. 1964), *Bergeron v. Aero Associates, Inc.*, 213 F.Supp. 936 (E.D. La. 1963), *Krause v. Sub-Aviation*, 301 F. Supp. 513 (D.C. N.Y. 1968) *Streach v. Assoc. Container Transp., Ltd.*, (C.D. Cal. 1975), 388 F.Supp. 935,



*Houston-New Orleans, Inc. v. Page Engineering Co.*, (E. D. La. 1972) 353 F.Supp. 890, 899, *Sears, Roebuck and Co. v. American President Lines, Ltd.*, (N.D. Cal. 1971), 345 F. Supp. 395, 401-402, *Kropp v. Douglas Aircraft Co.*, (E.D. N.Y. 1971), 329 F. Supp. 447, 455, *Ohio Barge Line, Inc. v. Dravo Corp.*, (W.D. Wash. 1971, 326 F.Supp. 863, *In re Alamao Chemical Transp. Co.*, (S.D. N.Y. 1970, 312 F. Supp. 1081, 1102, modified, 2 Cir., 460 F.2d 89, cert. denied, 1972, 409 U.S. 982, 93 S.Ct. 318, 34 L.Ed. 2d 246, *Soileau v. Nicklos Drilling Co.*, (W.D. La. 1969), 302 F. Supp. 119, 126-27.

However, the court of appeal here reserved the question for the Fifth Circuit on the ground that "the facts here are insufficient to establish liability under the theory".

As shown hereinafter, the facts here amply establish a case appropriate for decision, and we submit that the importance and pervasiveness in maritime law of the question of a manufacturer's liability warrants resolution by this Honorable Court for the benefit of all courts setting in admiralty.

## II.

In fixing the proper standard for manufacturer's liability under the Death on the High Seas Act, the criterion governing burden of proof is of critical importance, and error in this regard led to the ultimate rejection of plaintiff's evidence in this case. The district court required that plaintiffs prove the *specific* cause of the crash, declaring that plaintiffs' case "hinges entirely on the testimony of the metallurgists regarding the fatigue crack". The Court of Appeal in a speculative assessment of the trial judge's opinion, con-

cluded that he did not really mean what he said (Opinion, page 750). The proper standard of proof, met by plaintiffs in this case, but not recognized by the courts below, is well stated in *Lindsey v. McDonnell Douglas Aircraft Corp.*, 460 F.2d 631, 635 (8th Cir., 1972), quoting from other authority:

“‘ Proof of the specific defect in construction or design causing a mechanical malfunction is not an essential element in establishing breach of warranty. ‘When machinery ‘malfunctions’, it obviously lacks fitness regardless of the cause of the malfunction. Under the theory of warranty, the ‘sin’ is the lack of fitness as evidenced by the malfunction itself rather than some specific dereliction by the manufacturer in constructing or designing the machinery.’”

Again, the importance of settling this question makes review by this Honorable Court appropriate and meritorious.

### III.

Laboring under the persuasion of the foregoing errors, it is perhaps not surprising that the court of appeal, in applying the “clearly erroneous” rule to the evidence, elevated the superficial disagreement of Bell’s employee witnesses to the level of “contradiction” of plaintiff’s independent experts and accordingly sustained the district court.

The record clearly shows that none of Bell’s employees met head-on the premises of plaintiff’s experts, nor challenged the conclusions drawn from those particular premises.

On the contrary, the *only* Bell witness who investigated the accident-- Mr. DeYoreo-- *confirmed* the critical finding of plaintiff's witnesses that the helicopter struck the water upside down. Further, not a single Bell witness expressed any opinion as to any cause of the accident based on any observed cause-and-effect relationship. Their defense of their employer consisted of pure speculation either contrary to the conceded facts or absent from the record. This becomes clear from an examination of what the court of appeal called "rebuttal evidence." (Opinion 751, footnote 7):

(1) Flying conditions were "very poor". While there was much debate about the weather (the men on the departure rig weren't even wearing raincoats outside-- App. 568-570) no witness suggested that conditions were severe for helicopter flying or that *any* weather short of a tornado could turn over a helicopter in the air. Helicopters are famous for routine flights when other craft are grounded by weather.

(2) The "Full power crash into the choppy water with resultant tumbling of the helicopter in unpredictable ways". This comes from a Bell engineer (App. 2075) who did not investigate the accident, and who did not even see the recovered parts until one-half hour before he testified. (App. 2045) No other witness expressed this unsupportable notion. Bell's crash investigator and plaintiff's experts firmly agreed that the craft impacted inverted, at high speed, directly into the water. There could not have been any "full power" because a helicopter *cannot fly upside down*.

(3) The tailboom may have been "thrown west of the wreckage by the initial impact or blown west by the current and wind." The tailboom was found more than a *half mile*

away from the floats. No power on earth could have "thrown" this relatively intact tailboom a half mile across the surface, much less the impact force of craft with the water. As to the effect of wind and current, the two pieces of the recovered craft would have drifted along together at the same rate. Even if it is speculated that the tailboom "sailed" better, it would have had to travel *more than one-third faster* than the floats at one mile per hour to gain a thousand yard lead in the hour and forty five minutes elapsed between crash and recovery. Understandably, none of the Bell witnesses undertook to support this wind-and-current fantasy. The simple fact is that the tailboom was a half mile from the float because it broke off while the rest of the craft continued forward and down.

(4) "Accidental pilot action or a malfunction in the controls". Pilot action must be ruled out immediately. In order to flip a helicopter, special unusual stick and pedal maneuvers are necessary, requiring a pilot intent on suicide. Simply turning loose the controls, or some wrong "push" will not do. (App. 709, 387, 601, 602)

Malfunction of the controls will likewise not cause inversion of the craft. The only flight controls on a helicopter are the main rotor blades and the tail rotor. The tail rotor is essentially intact today, so it must have worked well until the tailboom fell off. If the main rotor controls had failed (not likely in this brand new helicopter) the blades would have run "wold" and chopped the tailboom, leaving marks which would have been visible today, as one of plaintiff's experts explained without dissent. (App. page 710)

(5) ". . . if the boom had torn off as plaintiffs argue,

it would have unavoidably entered the path of the rotor blades". The court of appeal inferred that the absence of main rotor strikes on the recovered tailboom thus refutes plaintiffs. Some of Bell's employees did say that they believed that an upward-bending tailboom would have entered the main rotor path. But *none* of them had made any studies on this point, and *none* knew the necessary degree of bend, the distance between the main rotor and the tailboom, or the break-away point of the tailboom. (App. 2065, 2066, 2132-34, 2157, 2180) On the other hand, the recovered tailboom, from the shape of the bent metal, shows the angle of bend prior to separation. One of plaintiff's experts studied the matter closely, and found that the 20-25 degree bend before separation would not reach the main rotor path.

Putting all of the above aside, however, leaves two rock bottom facts not appreciated by the courts below. *First*, as agreed by all witnesses (even *urged* by Bell) there are no main rotor marks on the tailboom. *Second*, *a helicopter cannot turn upside down without the main rotor blades changing path and striking the tailboom*. Common sense supports the uncontested testimony on this point. (App. 641) Helicopter rotor blades are not fixed, but flap as they rotate. A complete reversal of vertical motion *necessarily* causes the tips to move below normal plane (upward) and strike the boom. Rather than refuting plaintiffs, the very strongest evidence that the tailboom broke off is the fact that *the tailboom wasn't there when the inverted main rotor blades moved to strike it*. We are reminded of Sherlock Holmes' solution of "The Mystery of the Barking Dog" -- the dog didn't bark.

At least the court of appeal did examine the ultimate



issue of fact in this case, i.e., whether or not the helicopter tailboom broke off in flight, which issue had been side-stepped in the district court. However, by failing to properly analyze the worthless refutation offered by Bell's employees, the court of appeal erred in applying the "clearly erroneous" rule.

### CONCLUSION

For the reasons set forth above, Petitioner prays that a writ of certiorari be granted, and that, upon due proceedings had, the judgment of the Court of Appeal, Fifth Circuit, be reversed, that Bell Helicopter Company be held liable to plaintiff under applicable law, or that this case be remanded for further proceedings in accordance with applicable law.

Respectfully submitted,

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Franklin, Louisiana,  
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**CERTIFICATE OF SERVICE**

I hereby certify that the respondent, Bell Helicopter Company, has been properly served, in conformity with Rule 33 of the United States Supreme Court, with a copy of the foregoing petition for writ of certiorari, by depositing same in a United States post office correctly addressed to respondent's counsel of record at his post-office address, A. R. Christovich, Jr., 1815 American Bank Building, New Orleans, Louisiana 70130, with first-class postage prepaid; and that I execute this certificate as a member of the bar of the United States Supreme Court.

Franklin, Louisiana, this 3rd day of June, 1977.

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JACK C. CALDWELL

**A-1**

**APPENDIX A**

**OPINION OF CIRCUIT COURT OF APPEALS**

**Mrs. Francis Nell HIGGINBOTHAM, Admx., etc., of  
Marshall K. Higginbotham, Deceased, etc., et al., Plain-  
tiffs - Appellees Cross-Appellants,**

**v.**

**MOBIL OIL CORPORATION, et al., Defendants-  
Appellants Cross-Appellees**

**Mrs. Wanda Moore LONG, Admx. of the Estate of De-  
ceased Joseph C. Long, Jr., etc., PLaintiff-Appellant**

**v.**

**BELL HELICOPTER CO., etc., Defendant-Appellee**

**Jeanette LeBlanc NATION, Personal Representative  
for Ella Menard Nation and Roy Glen Nation, Plain-  
tiffs-Appellants,**

**v.**

**TEXTRON INDUSTRIES, INC., etc., et al., Defendants-  
Appellees.**

**Mrs. Arline J. SHINN, Individually, etc., et al., Plaintiffs-  
Appellants,**

**v.**

**MOBIL OIL CORPORATION and Bell Helicopter, Defen-  
dants-Appellees.**

**No. 74-1275**

**United States Court of Appeals, Fifth Circuit**

**Jan. 13, 1977.**



Consolidated actions were brought as a result of the death of a pilot and three passengers in a helicopter crash in the Gulf of Mexico. Defendants were the owner operator of the helicopter and the manufacturer. The manufacturer was exonerated, but the owner operator found liable, by the United States District Court for the Western District of Louisiana, Opelousas Division, Nauman S. Scott, J. 357 F. Supp. 1164. Damages were subsequently awarded, 360 F. Supp. 1140. On appeal by all parties except the manufacturer, the Court of Appeals, Thornberry, Circuit Judge, held that the owner operator had properly been held liable. Contrary to the finding of the district court, one passenger, employer by the owner operator, was a seaman on the date of his death, for which there was liability under the Jones Act. Testimony concerning future wage increases was insufficient to support an award based upon a five per cent future earnings increase factor. Death on the High Seas Act was not exclusive wrongful death remedy outside of state territorial waters, and, under maritime wrongful death remedy, representatives of decedents, on proper proof, could recover for loss of society. If representatives of the seaman could establish their right to recovery under maritime wrongful death remedy, their recovery under the Jones Act was not a bar to an award for loss of society.

Affirmed in part; reversed in part and remitted.

Godbold, Circuit Judge, filed an opinion concurring in part and dissenting in part.

Gee, Circuit Judge, filed an opinion concurring in part and dissenting in part.

## A-3

### 1. Products Liability -- 75

Causation must be established under doctrine of strict liability, as well as under ordinary negligence.

### 2. Evidence -- 570

Expert testimony is not controlling but, rather, its credibility is for trier of fact.

### 3. Courts - 406.3(22)

Trial judge's reliance on metallurgical evidence for substantiation or refutation of plaintiffs' theory of causation of helicopter crash was understandable whether he was subjectively concerned with negligence or with strict liability, and thus there was not shown any mistake of law to render inapplicable the general rule that trial court's findings would be accepted unless clearly erroneous.

### 4. Aviation -- 13

Evidence sustained finding that plaintiffs had not carried their burden of proof, against manufacturer of helicopter, as to whether cause of crash was metal fatigue.

### 5. Negligence -- 121.2(12)

Applicability of *res ipsa* to any species of accident depends in first instance upon whether mishap is of type that ordinarily does not occur in absence of negligence; rule is based upon human experience, and its application to particular situation must necessarily vary with human experience.

7. Negligence -- 121.2(12)

Application of *res ipsa* to one defendant and not to another requires that circumstances surrounding injury render it more probable that injury was due to that defendant's negligence than that of the other defendant.

8. Negligence -- 121.2(7)

Every possible alternative cause of injury need not be totally excluded for *res ipsa* to apply; all that is necessary is that likelihood of other causes be sufficiently reduced that fact finder may reasonably conclude from preponderance of evidence that fault, if any, is attributable to party against whom doctrine is employed.

9. Courts -- 406.3(22)

Where, although trial judge could not attribute helicopter crash to any specific cause, he concluded that, as to helicopter operator, total effect of evidence afforded reasonable inference of fault, no clear error was shown in his finding of negligence on part of operator or in trial judge's being aided by doctrine of *res ipsa loquitur*, though he found "insufficient" evidence rather than "no" evidence of negligence on part of manufacturer.

10. Seamen -- 29(2)

Once it is established that claimant is seaman, Jones Act permits recovery even if he sues for injuries received while off ship and engaged in temporary work for his employer unrelated to service of the ship. Jones Act, 46 U.S.C.A. §688; Longshoremen's and Harbor Workers' Compensation

Act, §§1 et seq., 5, 33 U.S.C.A. §§901 et seq., 905.

11. Seamen -- 29(5.16)

Generally, determination of whether individual is "seaman" within purview of Jones Act or maritime law is purely factual matter for determination by jury or fact finder. Jones Act, 46 U.S.C.A. § 688.

See publication Words and Phrases for other judicial constructions and definitions.

12. Seamen -- 29(2)

Situs of work is not determinative in Jones Act case; seaman, once he has become such, retains his status so long as he performs substantial part of his work on the vessel. Jones Act, 46 U.S.C.A. § 688.

13. Courts -- 406.3(10)

Where trial judge's finding was tainted by misapprehension of controlling legal principles, review of evidence by Court of Appeals was free from constraints of clearly erroneous rule.

14. Seamen -- 2

Where during two years prior to his death decedent spent all but small fraction of his working time on submersible drilling barges and where, as drilling foreman, he plainly contributed to mission of drilling barges upon which he was normally stationed, and he was assigned to fixed platform where he had worked during week preceding his death only

as presumably temporary replacement for vacationing foreman, he was, though assigned to work on fixed platform from which he departed as passenger in helicopter which crashed, a "seaman" employee, and his representatives were entitled to maintain Jones Act action for his death. Jones Act, 46 U.S.C.A. § 688; Longshoremen's and Harbor Workers' Compensation Act, §§ 1 et seq., 5, 33 U.S.C.A. § 901 et seq., 905; Outer Continental Shelf Lands Act, § 4(b, c), 43 U.S.C.A. § 1333(b,c).

15. Death -- 58(2)

In absence of any evidence to support award for conscious pain and suffering prior to death, recovery for pain and suffering was properly denied in actions under Death on the High Seas Act, Jones Act, and General maritime law. Jones Act, 46 U.S.C.A. § 688; Death on the High Seas Act, § 1 et seq., 46 U.S.C.A. § 761 et seq.

16. Death -- 58(1)

To recover at all for future wage raises, plaintiff was required to bear difficult burden of proving what portion of increases would have been given other than as automatic hedge against inflation, and, although trial judge specifically stated he did not take into consideration decreasing purchasing power of dollar, award based upon five percent future earnings increase factor could not stand.

17. Death -- 67

It is within trial judge's discretion to reject any testimony concerning future wage increases as too speculative to support recovery.



18. Death -- 88

Death on High Seas Act was not exclusive wrongful death remedy outside of state territorial waters, and, under maritime wrongful death remedy, representatives of decedents, on proper proof, could recover for loss of society. Death on the High Seas Act, § 1 et seq., 46 U.S.C.A. § 761 et seq.

19. Death -- 91

If representatives of seaman could establish their right to recovery under maritime wrongful death remedy, their recovery under Jones Act was not bar to an award of damages for loss of society. Jones Act, 46 U.S.C.A. § 688.

\* \* \* \* \*

Appeals from the United States District Court for the Western District of Louisiana.

Before THORNBERRY, GODBOLD and GEE, Circuit Judges.

THORNBERRY, Circuit Judge:

These four consolidated actions were brought to recover damages for the death of the pilot and three passengers of a Bell Jet Ranger helicopter that crashed in the Gulf of Mexico. Plaintiffs sought recovery from Mobil Oil Company, who owned and operated the helicopter, and Bell Helicopter Company, who manufactured it. Mobil cross-claimed against Bell for the cost of the aircraft and for indemnity as to any amounts it might be required to pay to the individual plaintiffs. The district court held Mobil liable for the death of Higginbotham, one of the passengers,

under the Death On the High Seas Act<sup>1</sup> (DOHSA) and general maritime law. It likewise held Mobil liable for the death of Shinn, another passenger, under DOHSA, the Jones Act,<sup>2</sup> and general maritime law. The court found that Nation, the third passenger was a nonseaman employee of Mobil; thus, his representative's recovery was limited to benefits payable under the Longshoremen's and Harbor Workers' Compensation Act<sup>3</sup> (LHWCA). Finally, the district court exonerated Bell entirely, cutting off any recovery by pilot Long's representatives, who sued only Bell.<sup>4</sup> All parties appeal, except Bell.

## I

The chief contentions raised in this court concern the district judge's (1) exculpation of Bell, (2) his application of *res ipsa loquitur* in finding Mobil liable to Shinn's and Higginbotham's representatives, and (3) his ruling as to pas-

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1. 46 U.S.C. § 761 *et seq.* The district judge concluded that admiralty jurisdiction existed over this suit because the accident took place on the high seas and "in conjunction with its extensive offshore activities." 357 F.Supp. 1164, 1167. We think this conclusion correct under *Executive Jet Aviation v. Cleveland*, 1972, 409 U.S. 249, 93 S.Ct.493, 34 L.Ed. 2d 454. Admiralty jurisdiction over aircraft accidents occurring on the high seas is not automatically ousted because the craft initially took off from or is normally based within the continental United States. See *In re Dearborn Marine Serv., Inc.* 5 Cir. 1974, 499 F.2d 263, 272 n.17; *Roberts v. United States*, 9 Cir. 1974, 498 F.2d 520, 523-24; *cf.* *American Home Assur. Co. v. United States*, M.D. Pa. 1975, 389 F.Supp. 657.

2. 46 U.S.C. § 688. The court found, and defendants do not contest, that Shinn's work on a drilling barge made him a Jones Act seaman.

3. 33 U.S.C. § 901 *et seq.*

4. The district judge's decision as to Bell naturally also required dismissal of Mobil's cross-claims.

senger Nation. The parties also raise a number of subsidiary issues that require discussion. Nevertheless, the facts of the case are fairly straightforward. Mobil used the Bell-manufactured helicopter as an airborne crewboat, ferrying workmen to and from offshore drilling sites. On August 15, 1967, sometime between 3:30 and 4:00 o'clock in the afternoon, the aircraft took off from Baxter Rig No. 3 with all four decedents aboard. When it failed to arrive at its scheduled destination a search was instituted, and the searchers soon discovered wreckage from the helicopter floating several miles from the craft's point of departure. Only a few pieces of the Jet Ranger were recovered, no one witnessed its crash, and no bodies were ever recovered. There had been no radio communication with the helicopter before its disappearance.

## II.

The individual plaintiffs (and Mobil) contend that the district judge erred in holding that no case was made out against Bell. At trial they relied upon three different types of evidence to establish Bell's liability. First, they introduced the testimony of two "aircraft crash reconstruction" experts. These witnesses testified, in substance, that all physical evidence available - including the allegedly inverted position of the helicopter when it hit the water, the pattern of damage to the recovered portions of the craft, and the position of the tailboom almost one-half mile from the remainder of the wreckage - indicated, or was consistent with the theory, that the tailboom separated from the helicopter in mid-air causing it to plummet out of control into the water. Second, to give some substance to their mid-air separation theory, plaintiffs (and Mobil) introduced the testimony of metallurgists who stated that in their opinion



the portion of the tailboom that was recovered contained a fatigue crack. From this crack, these witnesses theorized, a tension crack propagated over nearly the complete circumference of the boom, resulting in compression at the top of the boom and eventually a complete tearing off of the tail from the rest of the helicopter. Finally, plaintiffs (and Mobil) adduced evidence showing that the helicopter involved in the crash was of a new design and that repeated complaints concerning cracks appearing in the tails of these new aircraft compelled Bell to change the alloy used in the tailboom from magnesium to aluminum.

In brief summary, Bell's witnesses disputed the existence of any fatigue cracks in the tailboom, argued that the Jet Ranger represented the highest state of the art, and asserted that the cracks reported by other users of this model helicopter were viewed by Bell and most owners of the craft as a maintenance nuisance rather than a safety hazard. Bell's experts also offered explanations other than mid-flight separation of the tailboom for the pattern of damage to the recovered portions of the Jet Ranger.

The district judge weighed this testimony and entered the following findings of fact:

The evidence does not establish that a fatigue fracture occurred in the tailboom . . . [and] is not sufficient to establish that an inflight separation of the tailboom caused the crash . . . . In fact, evidence is so insufficient that no actual, probable or suggestive cause of the crash . . . [can] be determined with any degree of certainty.

357 F.Supp. at 1171-72. In light of these adverse fact-findings and the spectre of the "clearly erroneous" rule,

plaintiffs (and Mobil) not unexpectedly invoke the doctrine that "findings induced by or resulting from a misapprehension of controlling substantive principles lose the insulation of F.R.Civ. P. 52(a) and a judgment based thereon cannot stand." *Continental Motors Corp. v. Continental Aviation Corp.*, 5 Cir. 1967, 375 F.2d 857, 859. Specifically, they argue that the trial judge erroneously believed that Bell could be held liable only for some particular negligent act, while in fact, plaintiffs say, they alleged and proved a good cause of action under the doctrine of implied warranty or strict products liability.

Their reasoning goes something like this. The district judge stated that "the case of plaintiffs and Mobil against Bell hinges entirely on the validity of its metallurgists experts . . . [T]he testimony of their other witnesses is principally corroborative . . . ." 357 F.Supp. at 1168. This statement, together with the judge's emphasis on whether the evidence supported the existence of a fatigue failure, reveals the lower court's belief that plaintiffs needed to prove a specific defect in the helicopter. Under products liability doctrines, however, no specific defect need be shown as long as plaintiff establishes that the product malfunctioned. Accordingly, the testimony of the accident reconstruction experts constituted the main thrust of the case-- since that testimony suggested that the helicopter crashed after a mid-flight separation of the tailboom -- and the testimony of the metallurgists was merely corroborative and precautionary since no matter why the boom fell off, a helicopter whose tailboom did so under ordinary flight conditions must have been defective. Hence, the trial judge's misapprehension of the applicable law led him to emphasize the wrong evidence, and this mistaken emphasis accounts for his erroneous conclusion that the tailboom did not break off in mid-air.

Notwithstanding our respect for the ingenuity of plaintiff's theory, we cannot accept it.<sup>5</sup> Initially, we are not convinced that the district judge misunderstood the nature of plaintiffs' case. The complaint clearly alleged negligence, as well as other theories, and much of plaintiffs' evidence manifestly was intended to establish that Bell's testing and supervisory procedures were negligently conceived and executed. Hence, references to negligence in the lower court's opinion are hardly conclusive.

[1-3] Second, plaintiffs fail to understand that the judge's finding that no mid-flight separation took place goes primarily to causation and only circumstantially to the

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5. It is worth mentioning that our court recently reserved the question whether products liability doctrine should be made a part of the general maritime law. *Williams v. Brasea*, 5 Cir. 1974, 497 F.2d 67, 78. This case, however, like *Williams*, is in our view an inappropriate vehicle for deciding the issue, because we conclude that the facts here are insufficient in any event to establish liability under the theory.

We recognize, of course, that a number of courts, including several district courts within this Circuit, have permitted admiralty suits based upon either the breach of an implied warranty or strict products liability. See *Lindsay v. McDonnell Douglas Aircraft Co.*, 8 Cir. 1972, 460 F.2d 631; *Streach v. Assoc. Container Transp. Ltd.*, C.D. Cal. 1975, 388 F.Supp. 935; *Houston-New Orleans, Inc. v. Page Engineering Co.*, E.D.La. 1972, 353 F.Supp. 890, 899; *Sears, Roebuck and Co. v. American President Lines, Ltd.*, N.D. Cal. 1971, 345 F.Supp. 395, 401-02; *Kropp v. Douglas Aircraft Co.*, E.D.N.Y. 1971, 329 F.Supp. 447, 455; *Ohio Barge Line, Inc. v. Dravo Corp.*, W.D. Wash. 1971, 326 F.Supp. 863; *In re Alamao Chemical Transp. Co.*, S.D. Tex. 1970, 320 F.Supp. 631, 634-38; *In re Marine Sulphur Transp. Co.*, S.D.N.Y. 1970, 312 F.Supp. 1081, 1102, *modified*, 2 Cir., 460 F.2d 89, *cert denied*, 1972, 409 U.S. 982, 93 S.Ct. 318, 34 L.Ed. 2d 246; *Soileau v. Nicklos Drilling Co.*, W.D. La. 1969, 302 F.Supp. 119, 126-27.

existence of a manufacturing defect.<sup>6</sup> As the Second Circuit recently noted:

The burden of proving causation is on the plaintiff. . . and causation must be established under the doctrine of strict liability, as well as under ordinary negligence.

*In re Marine Suplhur Queen*, 2 Cir. 1972, 460 F.2d 89, 101-02; see also *Leverson v. Boeing Co.*, 9 Cir. 1975, 510 F.2d 937. Thus, whether the district judge believed that these cases were based upon negligence or upon strict liability, his inquiry concerning causation would be essentially the same.

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6. This misunderstanding explains plaintiffs' erroneous reliance on *Lindsay v. McDonnell Douglas Aircraft Co.*, 8 Cir. 1972, 460 F.2d 631. In *Lindsay* the Eighth Circuit, after concluding that federal maritime law would and should adopt the doctrine of strict liability in tort, *id.* at 635-36, remanded the case to the district court for a determination of whether a fire observed on a crashing jet airplane was the cause of the accident. The court stated that plaintiff need not prove a specific defect, for the existence of a fire on board "would strongly indicate a malfunction in the aircraft itself resulting from some defect in either manufacture, material, or design." *Id.* at 637. Nevertheless, the court also warned that because the evidence was circumstantial, the inference of defective manufacture from a known malfunction was merely permissible, not compelled. *Id.* at 640. On remand, the district court found that the airplane was not on fire when it hit the water and concluded that plaintiff had not established the existence of a defect. *Lindsay v. McDonnell Douglas Aircraft Corp.*, E.D. Mo. 1972, 352 F.Supp. 633. Plaintiff again appealed, but this time the Eighth Circuit affirmed, holding that the lower court's findings were not clearly erroneous, *Lindsay v. McDonnell Douglas Aircraft Corp.*, 8 Cir. 1973, 485 F.2d 1288.

*Lindsay* was a stronger case than this one from the plaintiff's viewpoint. Mrs. Lindsay offered the testimony of a shrimp boat captain that he saw Mr. Lindsay's plane burning just before it crashed. Here plaintiffs had no direct evidence of mid-air separation of the tailboom--analogous to the fire in *Lindsay*--so the trial judge to find Bell liable would have been required to infer not just the defect from the malfunction, but the malfunction itself.

Here plaintiffs' only explanation of the crash, as against Bell, was that the tailboom of the helicopter broke off in mid-flight. They needed to prove that theory before they could argue their strong circumstantial case that only a manufacturing defect could have caused such a failure. Cf. *Lindsay v. McDonnell Douglas Aircraft Co.*, supra, at 639-40; *Krause v. Sud-Aviation*, 2 Cir. 1969, 413 F.2d 428. The trial judge's statements about the relative importance of the two types of expert testimony offered by the plaintiffs almost certainly reflected his conclusion that the accident reconstruction evidence was utterly insufficient to establish that the tailboom came off in mid-air without some credible explanation of *why* such an unusual occurrence might have taken place. That is, he focused on the alleged specific defect not necessarily because he thought plaintiffs needed to prove such a defect by direct evidence in order to establish that Bell breached some duty toward persons in plaintiffs' position, but because without the alleged defect he could give no credence to plaintiffs' causation theory. The credibility of expert testimony is for the trier of fact; as this court only recently noted, "expert witnesses appear to assist in the court's decision-making process, not to control it." *Reyes v. Wyeth Laboratories*, 5 Cir. 1974, 498 F.2d 1264, 1289. Bell's witnesses sharply contradicted plaintiffs' accident reconstruction experts on the possibility of mid-air tailboom separation. Hence, we think that the trial judge's reliance on the metallurgical evidence for substantiation or refutation of plaintiffs' theory of causation is perfectly understandable regardless of which theory of Bell's duty--negligence or strict liability--he was subjectively concerned with. For the reasons stated, then, we reject plaintiffs' attempt to strip the lower court's factfinding concerning causation of its "clearly erroneous" shield.



[4] Plaintiffs do not rely solely on their mistake of law attack on the findings of fact, however. They also allege numerous errors in the district court's factual deductions, any one of which if established, they contend, would render the findings clearly erroneous. The voluminous record in this case plainly prevents us from summarizing and analyzing all of these evidentiary challenges. Nevertheless, we have carefully examined each one in light of the record and the district court's opinion. We note that plaintiffs steadfastly insist that their evidence was "uncontradicted." To the contrary, our examination of the record reveals that Bell's witnesses repeatedly contradicted plaintiffs' witnesses, both on the likelihood of mid-air separation of the tailboom<sup>7</sup> and on the existence of a fatigue crack at the area

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7. As earlier noted, plaintiffs cite several items of "accident reconstruction" evidence to support their mid-air separation theory. These include: (1) the routine nature of the flight; (2) the pattern of damage to the recovered portions of the helicopter; (3) the position of the tailboom approximately one-half mile west of the other portions of the wreckage; (4) the allegedly inverted position of the aircraft when it hit the water; and (5) the absence of main rotor strikes on the tailboom.

Without purporting to summarize all of the contrary evidence, and without identifying particular pages in the appendix, the following rebuttal evidence either appears directly in the testimony or is inferable from it: (1) when the helicopter left the drilling rig low level flying conditions in the area were "very poor" due to intermittent showers and thundershowers in the general area; (2) the pattern of damage to the recovered portions of the craft were consistent with a full power crash into the choppy water with resultant tumbling of the helicopter in unpredictable ways; (3) the tailboom may have been either thrown west of the wreckage by the initial impact or blown west by the current and the wind, both of which were westerly; (4) the allegedly inverted attitude of the helicopter when it hit the water may have been attributable either to accidental pilot action or a malfunction in the controls; and (5) the absence of main rotor strikes on the tailboom refutes rather than supports plaintiffs' theory, because if the boom had torn off as plaintiffs argue it would have unavoidably entered the path of the rotor blades.

between six o'clock and eight o'clock on the circumference of the tail.<sup>8</sup> The district judge, who heard the testimony and viewed the exhibits, concluded that plaintiffs had not carried their burden of proof against Bell as to the cause of this unfortunate accident. We cannot say that his conclusion was clearly erroneous.<sup>9</sup> See *Leverson v. Boeing Co.*,

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8. Regarding the existence of a fatigue crack on the tailboom, plaintiffs relied heavily on the testimony of their metallurgists that certain grain deformation typical of tensile-shear failure did not appear in the area on the boom where they argued that the cracking began in fatigue. All of Bell's witnesses denied seeing any evidence of fatigue, and, as the district judge noted, other physical evidence contradicts the fatigue theory. As for the statement in the opinion that "practically the entire fracture occurred in compression," we do not view it, as plaintiffs do, as damning evidence of the district judge's misunderstanding of the metallurgical evidence. Taken in context it is reasonably clear that Judge Scott meant only to say that the extensive areas of compression on the tailboom clockwise between the nine o'clock and 4:30 positions (to which plaintiffs' witnesses testified, see App. at 639-640) were more consistent with Bell's "instantaneous static overload" view than with plaintiffs' "fatigue crack and tear" theory. Moreover, at one point in his testimony one of plaintiffs' own witnesses stated that the section of the boom discussed by Judge Scott "started failing in compression," before correcting himself by stating that as a "technical point" no metal fails in compression.

Judge Scott noted his "lack of expertise" in metallurgy. We likewise note ours. Perhaps our judicial system can and should develop better methods for trying difficult questions of scientific or technological fact. See, e.g., Danaher, Piehler, Twerski, & Weinstein, *Product Liability: An Interaction of Law and Technology*, 12 Duquesne L. Rev. 425 (1974); *The Technological Expert in Products Liability Litigation*, 52 Texas L. Rev. 1303 (1974). Nevertheless, this case requires decision now and under our present system; we decline to overturn the considered findings of the district judge on the fatigue issue based only upon the simultaneous presence of disputed expert metallurgical testimony and ambiguous cracks. See Danaher, Piehler, Twerski, & Weinstein, *supra*, 12 Duquesne L. Rev. at 430 n. 11; 52 Texas L. Rev. at 1311.

9. The clearly erroneous standard is of course fully applicable to suits in admiralty. *Coulter v. Ingram Pipeline, Inc.*, 5 Cir. 1975, 511 F.2d 735, 736, n. 1.

*supra*; *Lindsay v. McDonnell Douglas Aircraft Co.*, 8 Cir. 1973, 485 F.2d 1288; *Krause v. Sud-Aviation, supra*; *Montgomery v. Goodyear Aircraft Corp.*, 2Cir., 1968, 392 F.2d 777.

### III.

Having eliminated Bell from the liability picture, the district court proceeded to inquire whether the individual plaintiffs had proved a case against Mobil. After considering the evidence in some detail the court concluded that the accident could not be attributed to any specific derelictions by that company. Nevertheless, aided by the doctrine of *res ipsa loquitur* Judge Scott ruled that the "total effect of the evidence" afforded a reasonably sufficient basis for attributing the crash to some negligence on the part of Mobil or its employees. Mobil's challenge to this finding requires us to answer two questions: (1) can the *res ipsa loquitur* doctrine be applied at all to aircraft crashes, and (2) if it can, is its application nonetheless barred here because plaintiffs introduced, along with their evidence against Mobil, evidence of Bell's responsibility for the crash?

Over thirty years ago this court addressed similar questions. In *Morrison v. LeTourneau Co.*, 5 Cir. 1943, 138 F. 2d 339, plaintiff sued both the owner and the operator of an airplane that crashed in unexplained circumstances, killing plaintiff's intestate. After reviewing the meager evidence concerning the cause of the accident, the court ruled that not even *res ipsa loquitur* could rescue plaintiff's case:

The doctrine of *res ipsa loquitur* cannot apply in cases of this sort, because there is no showing that accidents of this very nature cannot happen to the most skillful pilots in planes of the finest type and condition. Even if



the doctrine of *res ipsa loquitur* were applicable, there would be the impossibility of determining the defendant against whom the rule should be applied, since the two defendants are charged with separate and distinct acts of negligence. Would the jury be permitted arbitrarily to find that because a wing broke under the circumstances the Flying School furnished a defective ship, or that the ship was negligently operated by the LeTourneau Company? The doctrine of *res ipsa loquitur* does not supply the material answer that is requisite. Neither does the evidence. It was wholly impossible for the jury to have determined from the evidence, and the inferences reasonably to have been drawn therefrom, either that the ship was defective or that it was negligently operated by Le Tourneau. If the proven facts give equal support to each of two inconsistent inferences, then neither is established, and "judgment, as a matter of law, must go against the party upon whom rests the necessity of sustaining one of these inferences as against the other, before he is entitled to recover".

138 F.2d at 341. The foregoing passage discloses that the court denied the applicability of the *res ipsa* on two grounds: first, because "there is no showing that accidents of this very nature cannot happen to the most skillful pilots in planes of the finest type and condition," and second, because the evidence did not permit the factfinder to choose, for purposes of fixing liability, between two defendants each of which was charged with "separate and distinct acts of negligence." As noted, Mobil urges that identical considerations require us to reverse the district court's judgment against it. We disagree.

[5,6] The applicability of *res ipsa* to any species of accident depends in the first instance upon whether the mishap is of a type that ordinarily does not occur in the absence of negligence. As this court noted in an early case refusing to apply *res ipsa* to the explosion of a jet engine:

*Res ipsa loquitur* is a rule based upon human experience and its application to a particular situation must necessarily vary with human experience. A situation to which the doctrine was not applicable a half century ago because of insufficient experience or lack of technical knowledge, might today fall within the scope of the rule, depending upon what experience has shown.

*Williams v. United States*, 5 Cir. 1955, 218 F.2d 473, 476. In 1943 when we decided *LeTourneau* air travel perhaps still seemed so inherently risky that people generally believed that aviation accidents could and did occur without human or mechanical failure. We think experience now teaches otherwise. Major improvements in design and manufacturing technology, in pilot training, and in ground control, communications, and navigational aids, among other things, have combined to give air travel an estimable safety record. By 1964 one distinguished commentator could write that "all the later cases" support the application of *res ipsa* to airplane crashes. W. Prosser, *Law of Torts* §39, at 220-21 (3d ed. 1964); cf. Annotation, 6 A.L.R. 2d 528. Our court has only recently implied that this use of *res ipsa* is well settled. *Kelly v. American Airlines, Inc.*, 5 Cir. 1975, 508 F.2d 1379, 1380 & n. 1. See also *United States v. Johnson*, 5 Cir. 1961, 288 F.2d 40, 45. Logic, experience, and precedent compel us to reject the argument that air-

plane crashes ordinarily occur in the absence of default by someone connected with the design, manufacture, or operation of the craft. *Accord, Cox v. Northwest Airlines, Inc.*, 7 Cir. 1967, 379 F.2d 893, *cert. denied*, 1968, 389 U.S. 1044, 88 S.Ct. 788, 19 L.Ed. 2d 836. Moreover, we see no meaningful distinction for these purposes between a fixed wing plane and a helicopter. Accordingly, we reject the first branch of Mobil's argument.

## B.

[7,8] Mobil also argues, however, that "the application of *res ipsa* to one defendant and not to another requires that the circumstances surrounding the injury render it more probable that the injury was due to that defendant's negligence, than that of the other defendant." (Mobil Brief at 21-22). We entertain no doubt that this contention correctly states the law. *See, e.g., Dowdell v. U.S. Industries, Inc.*, 6 Cir. 1974, 495 F.2d 641, 644; *Domany v. Otis Elevator Co.*, 5 Cir. 1966, 369 F.2d 604, 613; W. Prosser, *Law of Torts* § 39, at 218 (4th ed. 1971). Moreover, cases can be found employing this reasoning to deny recovery in aircraft crash cases. *See Morrison v. LeTourneau, supra*, *Campbell v. First National Bank*, D.N.M. 1973, 370 F.Supp. 1096, 1098-99; *cf. Kelly v. American Airlines, Inc., supra*; *Kelly v. American Airlines, Inc., supra*; *Kelley v. Central National Bank of Richmond*, E.D. Va. 1972, 345 F.Supp. 737, 741; *Davies Flying Service v. United States*, W.D. Ky. 1953, 114 F.Supp. 776. It does not follow, however, that *res ipsa loquitur* dropped from this case as a matter of law when plaintiffs and Mobil offered evidence suggesting that a party other than Mobil may have been responsible for the accident. Every possible alternative cause of the injury need not be totally excluded for *res ipsa* to apply; all that is

necessary is that the likelihood of other causes be sufficiently reduced so that the factfinder may reasonably conclude from a preponderance of the evidence that the fault, if any, is attributable to the party against whom the doctrine is employed.<sup>10</sup>

For example, in *Colditz v. Eastern Airlines, Inc.*, S.D. N.Y. 1971, 329 F.Supp. 691, plaintiffs sued Eastern and Trans World Airlines for injuries suffered when airplanes operated by the two companies collided in mid-air. One issue before the court was whether plaintiffs could rely on *res ipsa loquitur* in attempting to make out their case. The airlines apparently argued that *res ipsa* was not available because the collision might have been caused by the negligence

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10. The Restatement (Second) of Torts §328 (d) states, in pertinent part:

(1) It may be inferred that harm suffered by the plaintiff is caused by the negligence of the defendant when . . .

(b) other responsible causes, including the conduct of the plaintiff and third persons, are sufficiently eliminated by the evidence . . . . (evidence added)

The comment to subsection (b) expands on this idea:

It is never enough for the plaintiff to prove that he was injured by the negligence of some person unidentified. It is still necessary to make the negligence point to the defendant. On this too the plaintiff has the burden of proof by a preponderance of the evidence; and in any case where there is *no doubt* that it is at least equally probable that the negligence was that of a third person, the court must direct the jury that the plaintiff has not proved his case. *Again, however, the plaintiff is not required to exclude all other possible conclusions beyond a reasonable doubt, and it is enough that he makes out a case from which the jury may reasonably conclude that the negligence was, more probably than not, that of the defendant.* (emphasis added)

See also F. Harper & F. James, *The Law of Torts* § 19.7 (1956).

of the air traffic controllers in charge of directing the flight paths of the two aircraft. Despite substantial arguments offered to demonstrate the controllers' negligence, *see White v. Trans World Airlines, Inc.*, S.D.N.Y. 1970, 320 F.Supp. 655, the district judge rejected the airlines' argument by noting that he had exonerated the controllers in a separate case arising out of the same accident. 329 F.Supp. at 693. In the instant case the district judge took up the issue of Mobil's and Bell's culpability in the same proceedings, but he considered Mobil's potential liability only after concluding that the plaintiffs had not carried their burden against Bell.

Even more in point is a recent decision by the Supreme Court of Texas. Plaintiffs sued Mobil Chemical Company for injuries they received when a pipeline safety valve at a Mobil plant ruptured and allowed acetic acid vapor to escape into the atmosphere. Plaintiffs were working near the site of the rupture and inhaled the vapor, causing the respiratory damage for which they sued. To establish Mobil's negligence, plaintiffs relied upon *res ipsa*. Mobil responded by adducing testimony indicating that the cause of the rupture was a structural defect in the valve -- for which the valve's manufacturer, if anyone, would be liable. The Texas court wrote:

While the jury was certainly entitled to believe. . . . [Mobil's] explanation, it was not compelled to . . . Since the same mechanism had worked properly the day before, the jury could have concluded that any structural weaknesses were more probably caused by Mobil's maintenance personnel. . . than by causes prior to Mobil's control of the Unit. The jury also could have believed that Mobil's testing procedures were inadequate or negligently followed if it did not discover such structural



weaknesses before pumping acid at high pressure through the system. In short, the jury could still reasonably infer from the circumstances of the accident that the accident was probably caused by Mobil's negligence.

*Mobil Chemical Co. v. Bell*, 517 S.W. 2d 245, 254 (Tex. 1974).

[9] In the instant case the district judge noted the evidence of (1) slipshod inspection practices by Mobil mechanics, (2) flights by Mobil pilots in excess of the recommended maximum airspeed for the helicopter, and (3) past "hot-rodding" by the Mobil pilot who died in this crash. Although he could not attribute the accident to any one of these causes, Judge Scott concluded that as to Mobil "the total effect of the evidence, affords a reasonable inference of fault." 357 F.Supp. at 1174. The record gives us no cause to doubt that the district judge took into account the strength of the evidence against Bell in assessing the "total effect of the evidence" against Mobil. Thus, no particular significance attaches, for instance, to the judge's couching his holding as to *Bell* in terms of "insufficient" rather than "no" evidence. In fact, Judge Scott's discussion of Mobil's inspection practices and the nature of the cracks that appeared in the tailbooms of other Jet Rangers suggests that he believed that even if the booms were defective from a maintenance viewpoint, they could have become a flight safety hazard only if the operator's inspection and repair practices were grossly negligent. Hence, his reasoning may have proceeded along lines identical to those the Supreme Court of Texas found permissible for the jury in *Mobil Chemical Co. v. Bell*, *supra*.

In any event, we may reverse the lower court's finding of



negligence only if we are convinced that it is clearly erroneous. See *Kennedy v. Henderscheid*, 5 Cir. 1973, 490 F.2d 85. We are not left with the definite and firm conviction that Judge Scott erred in the inferences he drew from the circumstances of this case or in his conclusion that Mobil failed to rebut those inferences. Compare *Stevens v. Barnard*, 10 Cir. 1975, 512 F.2d 876, 879-81, with *Krause v. Sub-Aviation*, *supra*. Consequently, we affirm the judgment against Mobil.

#### IV.

The representatives of James Nation, another passenger who died in the crash of the Jet Ranger, urge us to reverse the lower court's holding that they can recover only under the provisions of the Longshoremen's and Harbor Workers' Compensation Act. The district court found that at the time of his death Nation was employed by Mobil on a fixed drilling platform; hence, as a matter of law, he was not a seaman. Consequently, the court disallowed any claim under the Jones Act.<sup>11</sup> Nation's representatives, however,

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11. Section 4(c) of the Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. § 1333(c), makes the Longshoremen's and Harbor Workers' Compensation Act applicable "with respect to disability or death of an employee resulting from any injury occurring as the result of operations described in subsection (b) of this section . . . ." Subsection (b) covers "any operations conducted on the outer Continental Shelf for the purpose of exploring for, developing, removing or transporting by pipeline the natural resources. . . of the subsoil and seabed of the outer Continental Shelf." Moreover, we have construed § 1333(c) to apply to injuries occurring as a result of operations described in subsection (b) without regard to the physical situs of the injury. *National v. Morris*, 5 Cir. 1973, 483 F.2d 577, 584, cert. denied, 1973, 414 U.S. 1071; 94 S.Ct. 584, 38 L.Ed. 2d 477; *Bertrand v. Forest Co.*, 5 Cir. 1971, 441 F.2d 809, cert. denied, 1971, 404 U.S. 863, 92 S.Ct. 106, 30 L.Ed. 2d 107; cf. *In re Dearborn Marine Serv., Inc.*, 5 Cir. 1974, 499 F.2d 263, 271-77 (law applicable to suits

introduced evidence that Nation spent much of his time during the two years before his death working on submersible drilling rigs, which this court has held are Jones Act vessels. Moreover, the evidence also suggested that Mobil assigned Nation to the fixed drilling platform simply as a temporary replacement for a vacationing co-worker. Under these circumstances it is argued that Nation achieved the status of a Jones Act seaman because of his predominant employment on submersible drilling barges and despite temporary assignments by Mobil to nonseaman employment.

[10] In *Offshore Company v. Robison*, 5 Cir. 1959, 266 F.2d 769, our court held that to claim the status of seaman an injured workman must convince the factfinder that he was, *inter alia*:

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(Footnote 11 continued)

against third parties for platform-related injury occurring on the high seas). Finally, the LHWCA provisions adopted by OCSLA are the *exclusive* remedy of the claimant against his employer. 33 U.S.C. §905.

Section 4(c) of the Act also provides, however, that "[f]or the purposes of the extension of the provisions of the Longshoremen's and Harbor Workers' Compensation Act under this section -- (1) the term 'employee' does not include a master or member of a crew of any vessel . . . ." Accordingly, we have held that OCSLA offers no obstruction to recovery by a Jones Act seaman for injuries occurring in connection with subsection (b) operations. *Noble Drilling Corp. v. Smith*, 5 Cir. 1969, 412 F.2d 952, cert. denied, 1969, 396 U.S. 906, 90 S.Ct. 221, 24 L.Ed. 2d 182. See also *Smith v. Falcon Seaboard, Inc.*, 5 Cir. 1972, 463 F.2d 206, cert. denied, 1972, 409 U.S. 1085, 93 S.Ct. 688, 34 L.Ed. 2d 672.

The implication of these statutes and decisions for Nation's representatives is that as against Mobil they may recover damages for their decedent's death, which occurred as a result of drilling operations on the outer Continental Shelf, only if Nation was a "member of a crew of any vessel," *i.e.*, a Jones Act seaman. See *Noble Drilling Corp. v. Smith*, *supra*, at 954-56.

assigned permanently to a vessel (including special purpose structures not usually employed as a means of transport by water but designed to float on water) or performed a substantial part of his work on the vessel.

266 F.2d at 779. Later cases have established the proposition that a workman may claim seaman's status despite being stationed on several different vessels during the course of his employment. *Braniff v. Jackson Avenue - Gretna Ferry, Inc.*, 5 Cir. 1960, 280 F.2d 523, 528. See also *Magnolia Towing Co. v. Pace*, 5 Cir. 1967, 378 F.2d 12, 13; *Taylor v. Packer Diving and Salvage Co.*, E.D. La. 1971, 342 F.Supp. 365, 371, aff'd, 5 Cir. 1972, 457 F.2d 512. Moreover, once it is established that the claimant is a seaman, the Jones Act permits recovery even if he sues for injuries received while off ship and engaged in temporary work for his employer unrelated to service of the ship. See *Braen v. Pfeifer Oil Transp. Co.*, 1959, 361 U.S. 129, 80 S.Ct. 247, 4 L.Ed. 2d 191; *Crafton v. Tennessee Valley Sand & Gravel Co.*, 5 Cir. 1969, 408 F.2d 1096; *Taylor v. Packer Diving and Salvage Co.*, *supra*; cf. *Doucet v. Wheless Drilling Co.*, 5 Cir. 1972, 467 F.2d 336, 338-39 ("The only requirement is that the seaman be 'doing the work of his employer pursuant to his employer's orders.' ")

[11-13] The lower court here found as a fact that Nation was not a seaman on the date of his death. Generally, "the determination of whether an individual is a 'seaman' within the purview of the Jones Act or the maritime law is a purely factual matter for determination by the jury or factfinder." *Ross v. Mobil Oil Co.*, 5 Cir. 1973, 474, F. 2d 989, 990. Nevertheless, it is clear that Judge Scott's finding on this issue was tainted by a misapprehension of

controlling legal principles set out above, for he ruled as to Nation "that as a matter of law his seaman's status is determined by the situs of his work at the time of his injury." 357 F.Supp. at 1177. As we have just indicated, however, situs of work is *not* determinative in a Jones Act case.<sup>12</sup> Accordingly, we have reviewed the evidence on Nation's employment status free of the constraints of the clearly erroneous rule. See *Stark v. Shell Oil Co.*, 5 Cir. 1971, 450 F.2d 994, 997; *Continental Motors Corp. v. Continental Aviation Corp.*, *supra*.

[14] Our examination of the record discloses uncontradicted evidence (1) that during the two years prior to his death James Nation spent all but a small fraction of his working time on Mobil's submersible drilling barges, and (2) that Mobil assigned Nation to the fixed platform where he had worked during the week preceding his death as a presumably temporary replacement for a vacationing foreman. The record gives use no cause to believe that Nation's general pattern of employment would have changed substantially had he lived. Given these circumstances, we think that the undisputed evidence requires a finding that Nation was a seaman despite intermittent temporary assignments to fixed platforms as the course of drilling operations required.<sup>13</sup>

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12. Although it is true that a worker does not forever remain a seaman solely by virtue of having once been one, see *Desper v. Starved Rock Ferry Co.*, 1952, 342 U.S. 187, 72 S.Ct. 216, 96 L.Ed. 205, it does not follow that a seaman automatically loses his status when he is temporarily assigned by his employer to duties off the vessel. Cf. *Keener v. Transworld Drilling Co.*, 5 Cir. 1972, 468 F.2d 729. He retains his status so long as he "perform[s] a substantial part of his work on the vessel." *Offshore Co. v. Robison*, *supra*, at 779.

13. There can be no question here as to the second element of the *Robison* test, contribution to "the function of the vessel or to the accomplishment of its mission," 266 F.2d at 779, because as a drilling foreman Nation plainly contributed to the mission of the drilling barges upon which he was normally stationed.

Thus, since Mobil had assigned Nation to work on the fixed platform from which the fatal helicopter took off,<sup>14</sup> his representatives are entitled to maintain a Jones Act action for his death. We have summarily affirmed a district court that permitted a suit under the Jones Act on facts substantially similar to those involved here. *Taylor v. Packer Diving and Salvage Co., Inc.*, *supra*. Accordingly, we reverse the district court's judgment as to Nation's representatives, direct entry of judgment in their favor under the Jones Act,<sup>15</sup> and remand for a determination of damages.

## V.

[15] The representatives of Shinn and Higginbotham argue that the district court erred in certain respects concerning its determination of the amount of damages to which they were entitled.<sup>16</sup> Mobil also objects to a portion of the lower court's damages computations. The individual plaintiffs' first contention may be disposed of quickly. The court did not err in denying any recovery for the conscious pain and suffering of Shinn and Higginbotham before their deaths. There is simply no evidence in the record to support such an award. See *In re Dearborn Marine Serv., Inc.*, *supra*, at 288.

[16, 17] More difficult is the question whether the district court erred in using a 5% annual straight line estimated

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14. That is, Nation plainly was within the scope of his employment.

15. We have already approved the district court's finding that Mobil's negligence probably caused the crash.

16. The district judge's opinion on damages is reported at 360 F. Supp. 1140.



salary increase to calculate the probable future earnings of Marshall Higginbotham.<sup>17</sup> Mobil contends that this method of calculation amounts to an increase based upon inflation. Judge Scott specifically stated that "[i]n determining the amount of the awards for loss of future earnings, we did not take into consideration the decreasing purchasing power of the dollar." 360 F. Supp. at 1150. In so holding the judge correctly anticipated our recent *en banc* holding in *Johnson v. Penrod Drilling Co.*, 5 Cir. 1975, 510 F.2d 234. Nevertheless, Mobil argues that the 5% straight line annual increase amounted to a hidden inflation-based award because "it is common experience that annual 'raises' are for the most part cost of living wages." Mrs. Higginbotham rejoins that it is "speculative and inaccurate" to assume that all pay raises are cost of living increases rather than awards in "recognition of performance and experience."

Our cases appear conclusive on this problem. For example, in *Petition of Canal Barge Co.*, N.D. Miss. 1971, 323 F. Supp. 805, the district court held that:

[Plaintiff's decedent] might have reasonably anticipated certain increases in his future earnings; such increases may fairly be calculated at the rate of 2% per year to the end of his work-life expectancy, which is to be also discounted. . . .

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17. No similar problem arose as to James Shinn. Mobil, his employer, provided exact information on the pay raises to which he would have been entitled. Even more importantly, Shinn would have retired within a few months of the lower court's judgment, thus mitigating any difficulties as to post-judgment increases in earnings. 360 F. Supp. at 1146.



*Id.* at 814. On appeal this court initially approved the 2% factor, but treated it as a recovery for the "anticipated annual increase in the cost of living." *Canal Barge Co. v. Griffith*, 5 Cir. 1973, 480 F.2d 11. 28, *rev'd on this point on petition for rehearing*, 5 Cir. 1975, 513 F.2d 911. Likewise, in *Johnson v. Penrod Drilling Co.*, *supra*, the court treated the following finding as an award based upon inflationary factors:

The wages of one performing the type of work that plaintiff was performing at the time of the accident in issue is likely to increase at the annual rate of 4.8% per annum. This percentage of annual increases in wages was the rate of increase of such wages from 1946 to 1969; and was the rate of annual increases which had held good from the year 1900.

510 F.2d at 238. In *Law v. Sea Drilling Corp.*, 5 Cir. 1975, 510 F.2d 242, the court similarly characterized this finding:

Cost of living increases and inflation would cause an increase in loss of income from the death of Wesley Law at a rate of 2% per year . . . Wesley Law was reasonably to be expected to increase his income based on the continued rise in his income reflected by his position and income tax returns.

510 F.2d at 251 & n.33. Finally, in *Robertson v. Douglas Steamship Co.*, 5 Cir. 1975, 510 F.2d 829, the court relied on *Johnson* to reverse an award based upon "loss of future wage increases or inflation or decrease in the purchasing power of money." *Id.* at 836. Manifestly, these cases make

no sharp distinction between "future wage increases" and outright allowances for the effect of inflation.

The Third Circuit has recently noted the close relationship between expert testimony purporting to project future pay raises and explicit inflationary considerations: "Although offered in terms of continuing increases in wage rates, as opposed to a continuing decline in the value of the dollar, the testimony in question reflects a continuing inflationary spiral." *Hoffman v. Sterling Drug, Inc.*, 3 Cir. 1973, 485 F.2d 132, 143, cf. *Magill v. Westinghouse Electric Corp.*, 3 Cir. 1972, 464 F.2d 294, 299-301. See also *Brooks v. United States*, D.S.C. 1967, 273 F.Supp. 619, 627-28. We believe that *Johnson v. Penrod Drilling Co.* and its progeny likewise stand for the proposition that courts may not simply assume that projected wage increases--whether calculated from the decedent's past earning experience or by some other means--would have been granted solely in "recognition of performance and experience." To the contrary, to recover at all for future raises plaintiff must bear the difficult burden of proving what portion of the increases would have been given other than as an automatic hedge against inflation.

Mrs. Higginbotham's economist arrived at the 5% figure for estimating Marshall Higginbotham's probable future annual wage increases by calculating the average annual percentage increases in Higginbotham's salary from the time he began working for Baxter Drilling Company (his employer at the time of the accident) until his death. App. at 2414-15. Included in this calculation was the assumption that Higginbotham, "a very capable tool pusher," would have maintained his past employment record. Nevertheless, the evidence sheds no real light on the basis of Higginbotham's

past raises -- i.e. whether they were cost of living bonuses or rewards for productivity.<sup>18</sup> Accordingly, the lower court's award based upon the 5% future earnings factor cannot stand. In view of the recent developments in this area, however, fairness demands that we remand to allow Mrs. Higginbotham an opportunity to prove her damages from the loss of her husband's future earnings according to the standards set out in this opinion. It remains, of course, within the trial judge's discretion to reject any testimony concerning future wage increases as too speculative to support recovery. Cf. *Bach v. Penn Central Transp. Co.*, 6 Cir. 1974, 502 F.2d 1117, 1122; *Hoffman v. Sterling Drug Co., Inc.*, *supra*; *Magill v. Westinghouse Electric Corp.*, *supra*; *Rideaux v. Lykes Bros. Steamship Co.*, S.D. Tex. 1968, 285 F.Supp. 153, 156.

[18, 19] As a final point, the representatives of Shinn and Higginbotham allege that because of changes in the law after the district judge decided this case they are now entitled to recover for an element of damages denied them by Judge Scott -- namely, loss of society or loss of love and affection. The district court denied recovery for these damages in reliance on *Canal Barge Co. v. Griffith*, *supra*. Subsequently, however, the Supreme Court in effect overruled the relevant part of that case by concluding that under the

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18. The salary increases given Higginbotham's replacement as tool pusher were used by the district court to calculate the decedent's lost wages from the date of his death until the date of judgment. This evidence arguably eliminated the more troublesome problems concerning the speculativeness of that award. *Johnson* and the cases following it teach, however, that pre-judgment increases, paid either to the decedent before his death or later to his replacement, may not be applied mechanically to calculate *future* wage increases, because the employer's wage policy may be tied to the rate of inflation or to the cost of living index. Cf. *Eason v. Weaver*, 5 Cir. 1973, 484 F.2d 459.

nonstatutory maritime wrongful death action announced in *Moragne v. State Marine Lines*, 1970, 398 U.S. 375, 90 S.Ct. 1771, 26 L.Ed.2d 339, a decedent's dependents may recover damages for loss of society when death occurs in a state's navigable waters -- an area not covered by DOHSA. *Sea-Land Services, Inc. v. Gaudet*, 1974, 414 U.S. 573, 94 S.Ct. 806, 39 L.Ed.2d 9. See *Canal Barge v. Griffith*, 5 Cir. 1975, 513 F.2d 911, 912 (on rehearing); *Skidmore v. Gruening*, 5 Cir. 1975, 506 F.2d 716, 727-29.

Judge Scott found that both the Shinn and Higginbotham representatives were entitled to recover under the *Moragne* maritime wrongful death remedy; he refused to award damages for loss of society only because, as just noted, the law of the circuit at that time was that loss of society was not a compensable item in a *Moragne* action. In the course of his discussion Judge Scott concluded that *Moragne* is fully applicable to deaths occurring on the high seas, despite the existence of the remedy provided for by the Death on the High Seas Act. 357 F.Supp. at 1175. Although earlier reserving the question of the applicability of *Moragne* on the high seas, *In re Dearborn Marine Serv., Inc.*, *supra* at 270 n.12, a panel of this circuit has since held "that *Moragne* applies not only to navigable waters of the States, but to the High Seas as well, including the area defined in DOHSA," and have accordingly awarded damages for loss of society for a death occurring beyond a marine league from shore. *Law v. Sea Drilling Co.*, 5 Cir. 1975, 510 F.2d 242, 250, *reh. denied, modified in part*, 5 Cir, 523 F.2d 793 (1975).<sup>19</sup> On remand, therefore the repre-

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19. *Contra, Barbe v. Drummond*, 1 Cir. 1974, 507 F.2d 794, 800-02. If presented as an original matter, the members of this panel would be constrained to reach the result of the First Circuit in *Barbe*. While both *Barbe* and *Law* are undoubtedly correct in extending the right to

sentatives of Shinn and Higginbotham should be permitted to recover this item of damages.<sup>20</sup>

Affirmed in part; reversed in part and remanded.

GODBOLD, Circuit Judge, concurring in part and dissenting in part:

I agree with Judge Thornberry except for that portion of Part V of his opinion that relates to Higginbotham's future earnings.

On the *res ipsa loquitur* point I add the following comments. We do not overrule either *Morrison v. LeTourneau*, 138 F.2d 339 (CA 5, 1943), or *Williams v. U.S.*, 218 F.2d 473 (CA5, 1955). *Morrison* was a 1943 decision concerning the 1940 crash of a two place "cub" plane. *Res ipsa* was inapplicable for several reasons. It was unknown whether the defendant's agent or the other person in the plane was in control as pilot; there were severe winds at the scene; there was no showing that accidents of the type involved could not happen to the most skillful pilots in planes of the finest

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recover for pain and suffering to deaths occurring on the high seas, the opinion in *Law* fails to distinguish between damages recoverable as survival items and as wrongful death items. Conscious pain and suffering is traditionally -- and logically -- a survival item. Loss of love and affection, or loss of society, on the other hand, is traditionally a wrongful death item. The members of the panel would read *Moragne* to say that DOHSA is the exclusive *wrongful death* remedy outside of state territorial waters. The decision in *Law*, however, forecloses this issue for the panel.

20. If the representatives of James Nation can establish their right to recover under *Moragne*, their recovery under the Jones Act will not bar an award of damages for loss of society. *Landry v. Two R. Drilling Co.*, 5 Cir. 1974, 511 F.2d 138; *McDonald v. Federal Barge Lines, Inc.*, 5 Cir. 1974, 496 F.2d 1376.



type and condition. As to the first two elements, they are not present in the instant case. As to the third, in *Williams* our court was concerned with the 1952 midair explosion of a B-47 jet bomber. We declined to apply *res ipsa* on the basis that the court had no knowledge, judicial or otherwise, of what would cause a jet plane to explode in midair flight. *Williams* recognized, however, that each case seeking to invoke *res ipsa* must stand or fall upon its own facts; that a situation in which the doctrine was previously inapplicable because of insufficient experience or lack of technical knowledge may currently fall within the scope of the rule; and that experience concerning the particular situation may be so uniform and well established that it is not necessary that it be "proved" by extraneous evidence.

Many of the cases concern common carriers. Mobil is not a common carrier, but its use of a fleet of helicopters as substitutes for crew boats, regularly moving men and equipment from shore to offshore drilling sites and back again, makes it something very close to a common carrier insofar as analysis of *res ipsa* is concerned. The ensuing regularity of operation with few significant incidents represents the kind of change in technology which *Williams* refers to, and it is a change which need not be adduced by specific proof but which judges in their experience may recognize. Judge Holtzoff discussed the change in technology concept in *Smith v. Pennsylvania Central*, 76 F.Supp. 940 (D.D.C. 1948). He pointed out that the argument that airplane accidents may be due to mysterious and unknown causes might have been applied to the railroads in their infancy, but that *res ipsa* was applied to them as early as 1844.

I dissent from the holding, in part V, that it was error for the trial court to calculate Higginbotham's future earnings by using 5% annual straight line estimated salary in-



creases. *Johnson v. Penrod Drilling Co.*, 510 F.2d 234 (CA5, 1975), was bad enough. Now it is extended. Here, the trial court's result was not based on an economist's projection of future economic cycles but upon circumstantial evidence consisting of past wage increases (those of Higginbotham and of the successor in his job) from which one may infer that the pattern of a sufficiently long period in the past is more likely than not to be the pattern of the future. A court should be entitled to conclude that a past pattern of earnings increases is of sufficient duration and uniformity that it is a reliable basis for an inference with respect to the future, even though the increases embraced in that pattern may contain cost of living increments. It seems to me that this is what the trial judge did in accepting the past track record and in holding that he was not taking into consideration decreased purchasing power of the dollar. I would, therefore, affirm on this issue.

In innumerable other contexts we accept the events of the past as the basis for an inference as to what the future will hold. Indeed we often insist upon it as the necessary predicate for an opinion respecting the future. Thus, if the plaintiff's back has hurt for two years since the accident, the doctor is allowed to opine that it will continue to hurt, and we never pause to doubt that this is permissible. We accept, indeed insist upon, projecting life expectancy upon the past record with respect to millions of people, although plaintiff may be (and almost certainly will be) an exception to the projected figure. The examples are endless. Yet we would not permit consideration of evidence that a particular plaintiff had received a \$200 per year increase in pay every year for 20 years, unless he could divide it up into "productivity" pay and "economic change pay". In this single area of projecting future earnings we deny ourselves

the best evidence available on the asserted ground that it is not sufficiently reliable, and, in the name of reliability we mandate the artificial conclusion that one will earn the rest of his life what he is earning on the day he is killed or injured. The only thing certain about this is that it is certain to be wrong.

GEE, Circuit Judge concurring in part and dissenting in part:

I fully concur in Parts I and II of Judge Thornberry's thorough and well-reasoned opinion. I am unable to concur, however, in the application of the doctrine of *res ipsa loquitur* made in Part III, and hence would not reach the matters discussed thereafter. In this circuit, the doctrine of *res ipsa loquitur* applies in an airplane crash case only if a preponderance of the evidence shows that the *particular accident in question* would ordinarily not have occurred in the absence of defendant's negligence.<sup>1</sup> But the opinion would approve application of the doctrine here by overruling longstanding Fifth Circuit law on the ground that airplane crashes no longer "ordinarily occur" without negligence. *Supra* at slip opinion p. 753, \_\_\_\_ F.2d at p. \_\_\_\_\_. If

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1. Compare *Morrison v. LeTourneau Co.*, 138 F.2d 339, 341 (5th Cir. 1943) ("The doctrine . . . cannot apply in cases of this sort, because *there is no showing* that accidents of this very nature cannot happen [without negligence].") (emphasis added), with *Williams v. United States*, 218 F.2d 473, 476 (5th Cir. 1955) (per curiam) ("[E]ach case seeking to invoke this doctrine must stand or fall upon its own facts."), and *United States v. Johnson*, 288 F.2d 40, 45 (5th Cir. 1961) ("[P]laintiffs had produced enough evidence to show that [ordinarily] these accidents would not have occurred if [defendants had been diligent.]").

Part III of the opinion really intends this, and if the pronouncement be taken at face value, a sudden and massive shift in our circuit's airplane-crash liability law would occur. Henceforth, as examples, when an aircraft in apparently good working condition vanishes during an over-water flight, or a fishing boat disappears in calm weather without radio transmission or significant wreckage, its operator will be liable.

The opinion of the court below attempts no factfindings about whether at the present time airplane accidents in general ordinarily occur without negligence; moreover, the record contains nothing approaching the comprehensive evidence of a general nature sufficient to support such a conclusion. If the trial court had meant to make such findings on the basis of the discrete evidence in this particular case, they would rest on an evidentiary basis no sounder--and be no more appropriate--than a finding that all red-headed men are bank robbers derived from evidence that John Smith, a red-headed man, robbed a bank. And if we are finding such facts on disputed evidence, as we should not be, our finding is precisely as groundless when based, as it is, on the same record. If on the other hand, we are announcing law, we are equally wrong to do so and for at least two reasons.

First, as a matter of common sense, it is plain that not all mistakes in judgment are negligent ones. General experience teaches that Hobson's choices arise in all activities subject to the elements, so that the pilot of a properly-functioning aircraft may take the path that leads to death or injury for himself and his passengers without carelessness. As Judge Tuttle once warned:

It is not true that [an airplane] crashes only if the pilot is *negligent*. Such crashes may be attributable to many things, such as structural defects, conditions of weather, excusable error in pilot judgment falling far short of pilot *negligence*, and the like.

*United States v. Johnson*, 288 F.2d 40, 46-47 (5th Cir. 1961) (dissenting opinion) (emphasis in original).

Second, on the procedural side, nothing is more firmly established in this circuit than the principle that decisions by a panel of our court are to be overturned only by the Supreme Court or by the court sitting en banc, not by a later panel. Under *LeTourneau*, as Judge Thornberry's opinion avows (Part III, preamble), *res ipsa* is not presumptively or generally applicable in our circuit to accidents of this nature. And if the conditions of air travel have so improved in the time since *LeTourneau* as to make it so applicable, it is the en banc court that must say so.

Doubtless the *res ipsa* doctrine will apply in a proper case where specific findings ruling out non-negligent causes can be and have been made on sufficient evidence. This is no such case. As noted, no evidence supports even a general finding that this particular accident would 'not ordinarily have occurred without negligence. To be sure, the trial judge ostensibly made such a finding, *Higginbotham v. Mobil Oil Corp.*, 357 F.Supp. 1164, 1174 (W.D. La. 1973), but he also found the evidence so insufficient that no probable cause of the accident could be determined. *Id.* at 1172. And four pages of discussion were necessary for him to dispose, in the face of highly conflicting expert testimony, of the structural failure theory, which was rejected at least in part because "very little (absolutely none

of the main power and control units or instrument panel, no flight plan, no communication, no performance record, taped or otherwise) of the aircraft remained and was available for analysis." *Id.* at 1167-68. In other words, there was not enough left of the craft to form a reliable basis for ruling in *or out* structural failure as a cause of the crash. In short, countless possibilities could explain the tragedy in this case, and to allow an inference of fault here is to tolerate blind speculation.

Even if *res ipsa* were appropriate, the lower court applied the wrong standard of proof. As the majority opinion points out, an inference that a defendant was negligent is permitted only when the likelihood of *all* other possible causes is sufficiently low that the factfinder reasonably concludes from a preponderance of the evidence that defendant *must* have been negligent. Here the finder of fact applied *res ipsa* after finding only that the evidence as a whole "afford[ed] a reasonable inference of fault." 357 F.Supp. at 1174. The factfinder may reasonably discern several possible explanations, but only a single most probable one.

Thus, the lower court adopted the wrong standard in applying an inappropriate doctrine. I would reverse on the *res ipsa loquitur* issue. Since this is not to be, however, I concur in Judge Thornberry's disposition of the damages questions discussed in Part V of the majority opinion.

